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ARIZONA STATE UNIVERSITY ■ COLLEGE OF BUSINESS
CENTER FOR BUSINESS RESEARCH

Quarterly Economic Forecast Update

Slower Growth in Store for 1989

The Economic Outlook Center (EOC) expects the Arizona economy to continue moving forward at a slow pace through the remainder of 1988 and 1989. Reduced migration, a construction slump and subdued employment growth are among the factors contributing to the state's mediocre performance to date this year and will limit economic growth for the next several quarters.

In spite of an unexpectedly strong showing by the U.S. economy, Arizona has lagged far behind the rapid rate of growth observed during the 1983-1986 period. Although the decline of the construction industry has decelerated in recent months, building activity remains well below the levels seen at the height of the expansion.

While much of the negative economic news in the past originated in the less-developed parts of the state, several large employers in the Tucson and Phoenix areas have announced major layoffs in recent months. The firms affected span a wide range of industries, including manufacturing, health services, finance, real estate and utilities. The resulting changes in the business climate have cooled the prospects of the state's urban regions, which until recently had been among the nation's fastest-growing cities.

Although 1988 has been the weakest year for the Arizona economy since the 1981-1982 recession, 1989 may bring even slower growth to the state. Conditions may improve sufficiently to allow the construction sector to turn around, but a slowing national economy, accompanied by higher interest rates, may put the brakes on a recovery by the building industry until the early 1990s.

THE NATIONAL ECONOMY

The statistical evidence of the U.S. economy's performance compiled so far in 1988 has followed a familiar pattern. Preliminary estimates have tended to be better than expected; subsequent revisions, almost invariably positive, add further to the impressive record of the longest peacetime expansion in U.S. economic history. In spite of the age of the current business cycle, the economy has continued to surpass the projections of most analysts.

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ARIZONA BUSINESS

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The biggest surprise has been the endurance of the American consumer, who was supposed to have spent himself into exhaustion long before now. After the October 1987 crash, the major downside risk to the U.S. economy in 1988 was the prospect of sharply curtailed consumption spending. Although spending dropped at an annual rate of 2.5 percent during fourth quarter 1987, it rebounded with a vengeance at the beginning of the new year.

Much of the reported strength in consumption has resulted from uncharacteristically high purchases of durable goods. Typically, during the later stages of a business expansion, spending on durables such as automobiles and appliances will wane as debt accumulates and consumer confidence ebbs. After faltering in the last quarter of 1987, consumption surged ahead at an annual rate of almost 4 percent early this year. The pace has slackened a little in recent months, but consumers have continued to make a large positive contribution to the nation's growth throughout the year.

The other principal source of robust domestic demand has been plant and equipment spending. After shaking off the financial jitters brought about by the crash last autumn, the U.S. industrial sector, in an unusual show of confidence, responded with gains in business fixed investment spending that should exceed 10 percent for all of 1988. Purchases of producer's durable equipment are up by about 13 percent, compared with an increase of about 3 percent in 1987.

There was widespread concern in midsummer when the Federal Reserve Board, apparently reacting to fears of renewed inflation, raised the discount rate from 6 to 6.5 percent. It is too early to determine whether this marked a move away from the spirit of accommodation that characterized Federal Reserve policy in recent years, but a pattern of rising interest rates probably will yield slower domestic demand growth during the rest of 1988 and 1989.

One consequence of the sustained growth of consumption has been a persistently large trade deficit. Rising demand has kept the volume of imports from shrinking as rapidly as expected, so the trade imbalance has not improved as much as the growth in exports would suggest. Although exports climbed by more than 12 percent in 1987 and should rise by more than 15 percent in 1988, the trade deficit has remained at more than $100 billion for several years. Even if the trade balance improves in the months ahead, it will be due to falling imports rather than to a surge in exports.

THE U.S. OUTLOOK

The EOC's forecast for the U.S. economy is summarized in Table 1.

TABLE 1
1988 AND 1989 ECONOMIC FORECASTS: UNITED STATES

	Actual 1987	Projected 1988	Forecast 1989
Gross National Product			
Billions of 1982 Dollars	3,847.0	3,998.1	4,075.4
Percent Change	3.4	3.9	1.9
Industrial Production			
Percent Change	3.8	5.5	2.6
Net Exports			
Billions of 1982 Dollars	–128.9	–97.3	–88.7
Housing Starts			
Number in Millions	1.63	1.45	1.37
Percent Change	–9.9	–10.5	–5.5
Unemployment Rate			
Percent	6.2	5.4	5.6
Consumer Price Index			
Percent Change	3.7	4.1	4.7
Three-Month Treasury Bill Rate			
Percent	5.8	6.6	7.0
Aaa Corporate Bond Rate			
Percent	9.4	9.9	10.1

Source: Economic Outlook Center, College of Business, Arizona State University.

The forecast—through the end of 1989, at least—does not feature a recession. However, it does envision a "soft landing" for the U.S. economy that could potentially become a recession as early as 1990. While a downturn is possible in 1989, the economy should have sufficient forward momentum to sustain growth through the end of the decade.

The predictions of rising interest rates made earlier in 1988 have proven to be essentially correct. Rates have increased slowly enough to prevent any major financial disruptions. With both short-term and long-term interest rates projected to continue their gradual ascent in 1989, the growth of the nation's industrial output should be somewhat slower than it was in 1987 and 1988. The home building industry also will be affected; housing starts, which totaled more than 1.6 million units in 1987, will average about 1.4 million units per year in 1988 and 1989.

Durable goods consumption also should be adversely affected by higher interest rates. New car sales, which have consistently surpassed a rate of more than 10 million per year since 1984, could slip below that pace by the end of 1989. The current boom in business spending, fueled by healthy increases in corporate profits, could be hindered as rising interest rates and inflation cut into profit margins and curb loan demand. Pressures to reduce the federal budget deficit also may limit the nation's economic growth rate in 1989. It is too early to predict the outcome of November's national elections, but it is likely that the new President and Congress will consider measures that will raise tax revenues or keep the growth of federal spending in check, either of which would tend to limit U.S. economic growth in 1989 and beyond.

Overall, real GNP is projected to grow by less than 2 percent in 1989, or about half the 3-percent-plus growth rate recorded during the last few quarters. Inflation will accelerate, but price increases should remain in the neighborhood of 5 percent per year. Food prices probably will rise more rapidly (mainly as a result of 1988's severe summer drought), but those increases will be offset somewhat by soft oil and gas prices and by continued modest gains in wages and salaries.

While net exports should show additional improvement in 1989, it will be due to falling imports. Slower growth in consumer spending, a by-product of moderate income growth, inflation and rising interest rates, will help to reduce the nation's appetite for imported goods. Conversely, as the global economic expansion matures, foreign economies also will experience slower growth, diminishing the demand for American manufactured goods.

THE ARIZONA FORECAST

When IBM announced in late June it would phase out its manufacturing operations in Tucson by the end of 1989, it confirmed a disturbing recent trend in the Arizona economy. The state's manufacturing sector never shared in the nation's export boom to the extent many analysts had expected. More recently, Motorola announced it would eliminate 600 to 800 positions in its Phoenix-area facilities. Defense contractors such as Hughes Aircraft, McDonnell Douglas Helicopter and Allied-Signal were among other manufacturing firms that either laid off workers or postponed expansion plans in Arizona during 1988.

And the layoffs were not confined to the manufacturing sector. Samaritan Health Services, Arizona Public Service Company, Dell Webb Corporation, Circle K Corporation and Valley National Bank are some of the major corporate employers that have trimmed their payrolls in 1988. The job reductions are symptomatic of two trends: large employers in many regions and industries are attempting to become more profitable by reducing costs, and many firms are being forced to cut back employment in response to Arizona's slowing growth rate.

Tables 2 and 3 summarize the Economic Outlook Center's forecasts for Arizona and Maricopa County, while Table 4 provides an industrial breakdown of the employment forecast for the state. In general, the forecast revisions reflect the continued weakness of construction activity, particularly in the Phoenix metropolitan area. Employment growth is expected to stay positive overall, although job losses are likely to continue in the construction and finance, insurance and real estate (FIRE) industries.

TABLE 2
1988 AND 1989 ECONOMIC FORECASTS: ARIZONA

	Actual *1987*	Projected *1988*	Forecast *1989*
Gross State Product			
Millions of 1982 Dollars	47,746	49,662	51,465
Percent Change	3.7	4.0	3.6
Personal Income			
Millions of Current Dollars	48,466	51,960	55,188
Percent Change	8.0	7.2	6.2
Retail Sales			
Millions of Current Dollars	18,001	19,024	20,038
Percent Change	4.7	5.7	5.3
Unemployment Rate			
Percent	6.3	6.0	6.5
Wage and Salary Employment			
Number in Thousands	1,383.7	1,424.9	1,461.9
Percent Change	3.4	3.0	2.6
Population			
Number in Thousands	3,405	3,476	3,550
Percent Change	3.1	2.1	2.1
Single-Family Units Permitted			
Number	27,360	22,690	20,100
Percent Change	–19.7	–17.1	–11.4
Multifamily Units Permitted[1]			
Number	12,038	7,900	6,660
Percent Change	–55.4	–34.4	–15.7

[1]Apartment complexes of three or more units

TABLE 3
1988 AND 1989 ECONOMIC FORECASTS: MARICOPA COUNTY

	Actual *1987*	Projected *1988*	Forecast *1989*
Consumer Price Index			
Percent Change	4.1	4.5	5.3
Retail Sales			
Millions of Current Dollars	11,743	12,432	13,115
Percent Change	3.5	5.9	5.5
Unemployment Rate			
Percent	5.2	5.1	6.0
Wage and Salary Employment			
Number in Thousands	— 912.7	939.2	964.5
Percent Change	3.4	2.9	2.7
Population			
Number in Thousands	1,970	2,013	2,056
Percent Change	3.6	2.2	2.1
Single-Family Units Permitted			
Number	18,012	14,910	13,320
Percent Change	–24.5	–17.2	–10.7
Multifamily Units Permitted[1]			
Number	9,106	5,950	5,100
Percent Change	–50.3	–34.7	–14.3

[1]Apartment complexes of three or more units

Source (Tables 2 and 3): Economic Outlook Center, College of Business, Arizona State University.

As defense spending reductions and corporate reorganizations take their toll, Arizona's manufacturing industry will remain relatively stagnant. Unless the vitality of the U.S. industrial sector soon spreads to Arizona, total manufacturing employment in the state may fall in 1989.

Construction

Although construction employment showed a small improvement during the summer months, the

gains did not match the seasonal increases usually observed. As the industry has struggled to break free from the slump it has been mired in since the second quarter of 1986, a pattern of lackluster growth has spread to other industries.

Figure I illustrates the rise and fall of construction employment during the current economic expansion and the related employment growth in the FIRE industry through second quarter 1988. While construction activity peaked in Arizona in June 1986, the financial sector kept expanding. Legislation which allowed out-of-state institutions to set up shop in Arizona became effective in October 1986 and the industry grew very rapidly through most of 1987.

Employment reached a peak in November 1987 (just a few weeks after the stock market crash) and has been sliding steadily since then. Construction and FIRE were the biggest contributors to the state's mid-1980s economic boom, so it is not surprising that the aggregate growth rate of gross state product (GSP) fell substantially when these industries faltered.

Housing starts (as measured by number of units authorized) are projected to decrease again in 1989, but the rate of decline will be less severe than in 1987 and 1988. In the Phoenix area, single-family housing starts, which were in the 18,000 to 20,000 range as recently as 1986, are projected to decline to a rate of about 13,300 units per year. The job losses observed in construction and FIRE in 1988 should diminish and reach bottom by the end of 1989.

Population

Slower population growth has been both a cause and effect of the sharp reduction apparent in Arizona's economic growth rate. Maricopa County, home to more than 2 million of the state's 3.5 million residents, was the major beneficiary of the massive employment and population gains that occurred in the 1970s and 1980s. Figure II shows the relationship between job creation and population growth in the Phoenix area during the last two decades. When large numbers of job opportunities were being created in the early stage of each business cycle, a bulge in the rate of migration to the area soon followed. As each cycle began to wind down, high levels of migration would persist for a year or two before the rate of population growth slowed.

In 1983 and 1984, thousands of construction jobs were spun off by the Phoenix area's building boom. Manufacturing employment also swelled, largely in response to the increased federal spending on defense equipment. Waves of job seekers soon inundated the region, creating new job opportunities in population-serving industries such as retail trade, medical services and government.

The population surge was amplified by the plunge in oil prices that choked off growth in cities such as Houston and Denver, which usually vie with Arizona for new residents. However, when building activity slowed and construction jobs started to disappear two years ago, the stage was set for the reduced migration flows we are seeing today.

The Center for Business Research (CBR) at ASU estimated that net migration to Maricopa County was about 1,000 in second quarter 1988, down from an average of more than 20,000 per quarter from 1984 to 1986. The population forecasts have been trimmed to account for the slower flow of new residents. The EOC projects population gains slightly exceeding 2 percent per year for Maricopa County and Ari-

TABLE 4
ARIZONA EMPLOYMENT FORECASTS
FOR 1988-1989 (thousands)

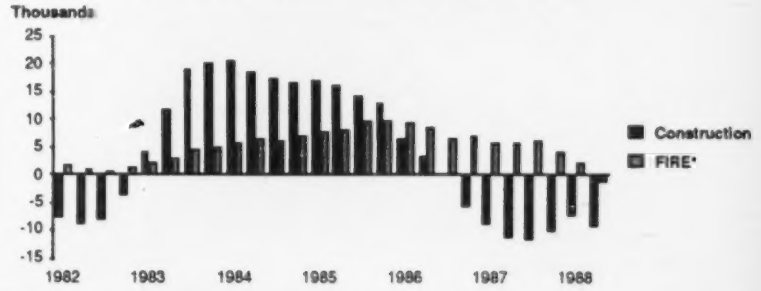
	1987	Percent Change	1988	Percent Change	1989	Percent Change
Manufacturing	187.2	1.4	189.3	1.1	189.0	-0.2
Mining	11.4	3.6	12.1	6.1	12.5	3.3
Construction	102.4	-9.5	94.4	-7.8	92.8	-1.7
TCPU*	72.0	9.3	73.9	2.6	76.6	3.7
Trade	339.5	4.3	354.7	4.5	367.1	3.5
FIRE**	94.4	6.2	93.6	-0.8	94.2	0.6
Services	343.9	6.2	364.9	6.1	381.0	4.4
Government	232.9	3.5	242.0	3.9	248.7	2.8
Total Wage and Salary Employment	1,383.7	3.4	1,424.9	3.0	1,461.9	2.6
Total Employment	1,513.0	3.4	1,545.0	2.1	1,589.0	2.8
Total Unemployment	101.0	-7.3	98.0	-3.0	110.0	12.2
Labor Force	1,614.0	2.7	1,643.0	1.8	1,699.0	3.4
Unemployment Rate	6.3		6.0		6.5	

*Transportation, Communications and Public Utilities

**Finance, Insurance and Real Estate

Source: Economic Outlook Center, College of Business, Arizona State University.

FIGURE I
ARIZONA EMPLOYMENT – CONSTRUCTION AND FINANCE
First Quarter 1982 through Second Quarter 1988
(Net Change from Same Quarter One Year Earlier)



*Finance, Insurance and Real Estate

Source: Arizona Department of Economic Security.

zona during the forecast period. While this is roughly half the growth rate of the mid-1980s, it still is about twice the national average.

Employment

Employment is projected to advance by an average of 3 percent in Arizona this year and by 2.6 percent in 1989. The problems experienced by the construction, finance and manufacturing industries, along with the aforementioned reduction in migration, are largely responsible for preventing the state economy from growing at its customary rate.

The layoffs announced by IBM and Motorola earlier this year suggest that the formerly bright prospects for Arizona's manufacturing sector may not be realized. If the U.S. economy defies expectations and continues expanding unabated into the 1990s, then the chances are very good that the state's advanced technology sector will fare better than the forecast suggests.

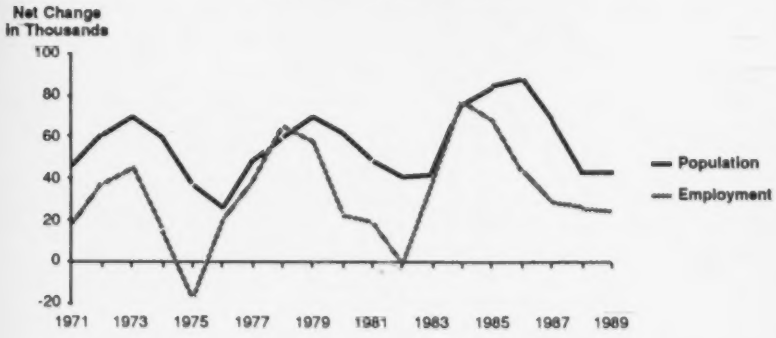
Personal Income

In August, the Bureau of Economic Analysis released revised estimates of state personal income for 1986 and 1987. Arizona personal income increased by 8 percent in 1987, significantly more than the 6.2 percent gain reported last April. On a per capita basis, personal income in the state averaged $14,315, up 4.6 percent over 1986 but about $1,166 below the national average.

With employment growing very slowly or decreasing in several key industries (finance, manufacturing and construction) and with slower population growth, Arizona personal income is projected to advance by 7.2 percent in 1988 and by just 6.2 percent in 1989, the lowest rate of income growth for the state since the recession year 1982, when state personal income rose by 5 percent. If the forecast proves to be correct, the state budget deficit that developed during the last two fiscal years may be repeated again in 1989. Retail sales growth, another major source of state tax revenues, is expected to increase relative to 1987 but will remain modest through 1989.

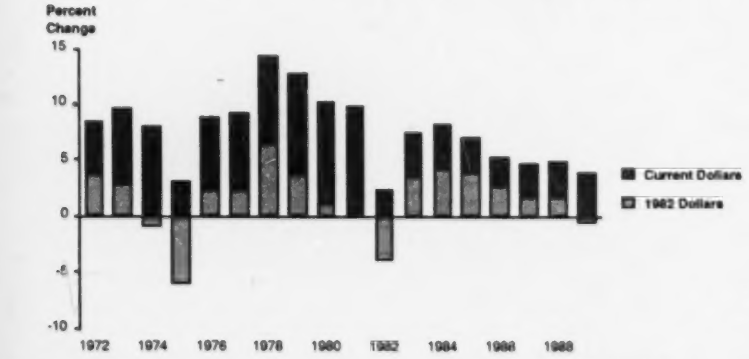
Figure III illustrates the actual and projected growth of Arizona per capita personal income. Much of the apparent gain in personal income (and in retail sales) in the forecast period will be generated by higher inflation. After adjusting for anticipated price increases, real per capita personal income may actually fall in 1989. Regardless, unless the employment situation improves dramatically in the months ahead, income growth is expected to be modest compared to recent experience.

FIGURE II
MARICOPA COUNTY EMPLOYMENT GROWTH AND POPULATION FLOWS
1971-89
Annual Change In Thousands



Source: Economic Outlook Center, College of Business, Arizona State University.

FIGURE III
ARIZONA REAL PER CAPITA PERSONAL INCOME GROWTH



Source: Economic Outlook Center, College of Business, Arizona State University.

SUMMARY

To place the forecast in proper context, it should be noted that Arizona's growth prospects remain very strong in comparison to most regions of the country. While the state's growth may not match that of states such as California, Washington and Nevada, it likely to be significantly stronger than in neighboring states such as Colorado, New Mexico and Utah.

Chances for better-than-expected economic growth depend on the ability of the U.S. economy to expand in 1989 at least as well as it has in 1988. Or, if Arizona were fortunate enough to be selected as the preferred site for the ballyhooed superconducting supercollider, its economy would stand to reap enormous benefits.

Should the national economy begin a descent into recession in late 1988 or 1989, the Arizona economy will not grow as strongly as these forecasts would indicate. However, the chance of a recession occurring before 1990 is small, so the Arizona economy should keep moving forward—although slowly—through the end of 1989.

– **Brian Cary,** *Economist*
Economic Outlook Center

Arizona Leading Index Increases in July

The Arizona Index of Leading Economic Indicators rose to 111.1 in July after holding steady at a revised 110.9 in May and June, to a point slightly above the 110.6 July 1987 figure (1977 = 100).

Providing the biggest boost to the index was an increase in seasonally adjusted inventories of purchased materials held by Arizona producers. Delivery times, new orders, employment, sensitive prices and production were also positive influences. Residential building permits, the money supply and manufacturing hours worked had a negative impact. Unemployment insurance claims were unavailable at the time the index was computed.

PERFORMANCE

Evaluation of the performance of the Index of Leading Indicators is necessary from time to time to detect whether revisions in the components and their weightings may be needed.

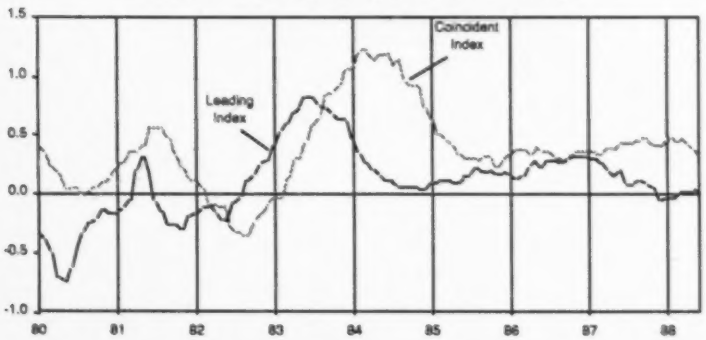
The two criteria to be considered are (a) timing and (b) direction. Ideally, the Index of Leading Indicators would move before other economic indicators and in the proper direction, with no false signals.

Figure 1 compares the movement of the Index of Leading Indicators with the index of coincident indicators produced by the Center for Business Research (see article this issue) from 1980 to the present. The coincident index provides a measure of current economic activity broader than a specific variable such as employment.

The raw indexes were converted to a percentage change basis to make them more directly comparable. A twelve month moving average was calculated for each percentage change series in order to smooth out minor variations.

The graph shows four clear instances of changes in the direction of the coincident index preceded by similar changes in the leading index. In mid-1980 and mid-1982, the leading index moved upward and a similar movement in the coincident index followed shortly after. In 1981 and 1983, the leading index correctly signaled a cooling economy. Correlation analysis shows that the warning period of a change in the direction of the economy is about four to eight months.

FIGURE I
ARIZONA LEADING INDEX PERFORMANCE
12 Month Moving Average of Percent Change



Source: Economic Outlook Center and Center for Business Research, College of Business, Arizona State University; sponsored by Citibank (Arizona).

OUTLOOK

Although sharp movements in the leading index gave clear signals of the course of the economy in the early years of the 1980s, the path of the index in the past year has been more difficult to interpret. The index declined during 1987, but did not show the negative readings associated with recession. Meanwhile, the coincident index has been relatively sluggish, reflecting a slowing economy. The leading index indicates that the Arizona economy will continue to experience very slow growth over the next several months. There is little evidence to suggest a significant increase in activity in the remainder of this year.

– **Tracy L. Clark,** *Economist*
Economic Outlook Center

TABLE 1
NET CONTRIBUTION OF INDIVIDUAL COMPONENTS TO THE ARIZONA INDEX OF LEADING ECONOMIC INDICATORS

	Net Contribution*			
	Apr.	*May*	*June*	*July*
Delivery Time*	–.03	.08	–.13	.13
Inventory Levels*	–.06	–.08	–.06	.17
New Orders*	.04	–.07	.01	.08
Production*	.00	.04	.03	.01
Employment*	.00	.04	–.05	.05
Residential Building Permits	–.35	.38	.03	–.23
Unemployment Insurance Claims	.21	–.23	.19	.00
Average Workweek, Manufacturing	–.02	.05	–.09	–.05
Money Supply	.15	.02	.06	–.05
Change in Sensitive Materials Prices	.02	.02	.03	.02
OVERALL INDEX CHANGE (%)	–.05	.25	.01	.13

* The net contribution of each component is calculated by multiplying the monthly percent change in its index by its relative importance.

*Based on indicators from the purchasing management associations of Arizona and southern Arizona.

Source: Economic Outlook Center, College of Business, Arizona State University; sponsored by Citibank (Arizona).

The Arizona leading index is based on 10 economic indicators, combined and weighted to project the pace of economic activity several months ahead. Five of the components come from a monthly survey of Arizona purchasing managers conducted by Dr. Harold Fearon. The Arizona Index of Leading Economic Indicators is sponsored by Citibank (Arizona).

Construction Takes Positive Jump in Second Quarter

After a slow first quarter 1988, construction in Arizona rebounded sharply during the second quarter. Total new construction was valued at nearly $1.4 billion (22,926 permits), a 36 percent improvement over the $1 billion (20,498 permits) reported for the first quarter. This stronger activity was especially evident in the apartment and retail sectors (see Table 1).

Maricopa County, with a 44 percent increase over the first quarter ($723 million to $1 billion), again dominated the state with 75 percent of the total recorded valuation. Pima County usually accounts for 15 percent of the state's permitted activity, but with only $137 million in new construction, its second quarter share declined to 10 percent. Led by increases in the single-family and retail sectors, total construction value in the rest of Arizona rose from $151 million in the first quarter to the current level of $202 million, representing 15 percent of the state's permitted activity.

Over 85 percent of the state's recorded construction in the second quarter occurred in twelve areas (see Table 2). While the only non-metropolitan area on the list is unincorporated Yavapai County, several other non-urban areas reported increases, including Lake Havasu City ($13 to $17 million), Casa Grande ($8 to $13 million), and Flagstaff ($10 to $16 million).

SECTORAL ACTIVITY

Residential

Although mortgage interest rates increased from 10 to 10.5 percent during the second quarter, single-family permits in Maricopa County climbed 11 percent over the first quarter (3,783 to 4,347 homes). While the number of permits is down 17 percent from a year ago (see Table 3), the average permit value increased over the year from $89,600 to $95,900; most of the activity was in the higher priced move-up market. Two cities reported improvement over the year: Chandler (244 to 288 homes) and Gilbert (303 to 406 homes).

Single-family construction improved in Pima County in the second quarter 1988 (811 to 991 permits), but is well below a year ago (1,147 homes). Unincorporated areas accounted for 71 percent of Pima County's permits (707 homes); only 19 percent (185 homes) were located in Tucson. This sector was also strong in Oro Valley (98 homes).

Permits in non-urban Arizona increased over the first quarter (1,168 to 1,428 permits), but still lagged a year ago (1,547 permits). Strong single-family activity during the quarter was reported by Lake Havasu City (176 homes), Prescott (84 homes), and Flagstaff (75 homes).

Commercial

Contrary to expectations, the apartment sector in Maricopa County had 2,888 newly authorized units, well above the 629 units of the first quarter and the highest level since third quarter 1987 (3,324 units). Most of the permits were issued in Phoenix (787 units) and Scottsdale (664 units), followed by Chandler (440 units), Gilbert (323 units) and Glendale (380 units).

In contrast, apartment activity in Pima County declined significantly from the first quarter (1,037 units to 397 units). In the rest of Arizona, the apartment sector increased from only 79 units to 190 units in the second quarter, above last year's level of 140 units, led by Flagstaff (72 units), Lake Havasu City (59 units), and Prescott (40 units).

New retail development achieved a record $135 million in Maricopa County in second quarter 1988. Phoenix led with $78 million, includ-

TABLE 1
KEY SECTOR CONSTRUCTION ACTIVITY
(Second Quarter 1988, First Quarter 1988, and Second Quarter 1987)

	SINGLE FAMILY		COMMERCIAL						INDUSTRIAL	
			APARTMENTS[a]		OFFICE BUILDINGS[b]		RETAIL STORES[c]			
Maricopa County	Number of Permits	Dollar Value (000)	Number of Units	Dollar Value (000)	Number of Permits	Dollar Value (000)	Number of Permits	Dollar Value (000)	Number of Permits	Dollar Value (000)
Second Quarter, 1988 ...	4,347	413,813	2,888	138,715	61	70,289	231	134,766	32	14,573
First Quarter, 1988	3,783	343,503	629	29,546	47	25,772	178	70,649	41	16,111
Second Quarter, 1987 ...	5,217	467,638	1,264	50,191	90	165,161	183	63,579	72	45,474
Pima County										
Second Quarter, 1988 ...	991	68,616	397	15,094	20	5,570	14	1,331	10	5,738
First Quarter, 1988	811	58,068	1,037	32,566	34	3,627	14	4,372	3	601
Second Quarter, 1987 ...	1,147	73,436	238	8,058	13	4,105	23	15,244	14	2,776
Rest of Arizona										
Second Quarter, 1988 ...	1,428	98,200	190	5,513	36	3,434	81	27,855	22	2,442
First Quarter, 1988	1,168	73,069	79	2,805	31	5,838	68	14,314	11	11,222
Second Quarter, 1987 ...	1,547	97,291	140	3,260	33	4,436	61	10,065	18	1,765
Arizona Total										
Second Quarter, 1988 ...	6,766	580,629	3,475	159,322	117	79,293	326	163,962	64	22,753
First Quarter, 1988	5,762	484,446	1,745	64,917	105	44,497	260	89,335	55	27,934
Second Quarter, 1987 ...	7,911	638,365	1,642	61,536	136	173,702	267	88,888	104	50,017

[a] Five or more housing units
[b] Office, bank, medical and professional buildings
[c] Shopping centers and other mercantile buildings

Source: Arizona Real Estate Center and Center for Business Research, College of Business, Arizona State University.

TABLE 2
REPORTING UNITS WITH GREATEST TOTAL VALUE OF BUILDING PERMITS
Second Quarter, 1988

Reporting Unit	Value (in millions)
Phoenix	$396
Scottsdale	197
Mesa	97
Unincorporated Maricopa County	76
Unincorporated Pima County	73
Gilbert	60
Tucson	57
Chandler	55
Glendale	52
Tempe	47
Peoria	35
Unincorporated Yavapai County	29

Source: Arizona Real Estate Center and Center for Business Research, College of Business, Arizona State University.

ing a single permit for $20 million. Retail development in Pima County dropped to only $1.3 million, but was quite strong in the non-metropolitan areas, especially Yuma (9 permits, $4 million), Flagstaff (6 permits, $2 million), Lake Havasu City (2 permits, $2 million) and Show Low (2 permits, $2 million).

While still behind the recorded activity of a year ago ($165 million), the office building sector in Maricopa County jumped from last quarter's $26 million to $70 million. With one permit worth $34 million, Phoenix was the leader at $44 million (24 permits), followed by Scottsdale ($20 million, 8 permits including one valued at $17 million). In Pima County, Tucson reported 13 office building permits totalling $3.9 million, two of which accounted for $2.5 million. No office building activity over $1 million was reported in the rest of Arizona.

Total statewide hotel/motel permits declined from $14 million in the first quarter to $8.6 million in the second quarter, but the number of new rooms increased from 247 to 367. Phoenix reported $6 million and unincorporated Yavapai County had one permit worth $1 million. No new activity was recorded in Pima County.

TABLE 3
ARIZONA HOUSING UNITS AUTHORIZED
Second Quarter 1988

	One Family	Mobile Homes	Duplex	3-4 Family	5 or More	Total
APACHE COUNTY	20	19	0	0	0	39
Percent Change, Previous Year	-61	-46	—	—	—	-66
Percent Change, Previous Qtr.	150	217	—	—	—	179
COCHISE COUNTY	113	12	0	0	0	125
Percent Change, Previous Year	-15	-91	—	—	—	-66
Percent Change, Previous Qtr.	26	-29	—	—	—	16
COCONINO COUNTY	174	106	16	34	72	391
Percent Change, Previous Year	-21	3	167	—	-84	-61
Percent Change, Previous Qtr.	23	94	167	700	—	91
GILA COUNTY	83	85	0	0	0	128
Percent Change, Previous Year	-9	0	—	—	—	-9
Percent Change, Previous Qtr.	6	30	—	—	—	-14
GRAHAM COUNTY	19	68	0	0	0	87
Percent Change, Previous Year	27	48	—	—	—	43
Percent Change, Previous Qtr.	6	21	—	—	—	18
GREENLEE COUNTY	0	0	0	0	0	0
Percent Change, Previous Year	—	—	—	—	—	—
Percent Change, Previous Qtr.	—	—	—	—	—	—
LA PAZ COUNTY	5	46	0	0	0	51
Percent Change, Previous Year	400	171	—	—	—	183
Percent Change, Previous Qtr.	-38	-12	—	—	—	-15
MARICOPA COUNTY	4,347	127	48	86	2,886	7,496
Percent Change, Previous Year	-17	-61	697	110	128	9
Percent Change, Previous Qtr.	15	-64	44	383	356	56
MOHAVE COUNTY	361	247	4	0	65	677
Percent Change, Previous Year	21	34	—	—	-45	9
Percent Change, Previous Qtr.	30	-23	-33	—	117	3
NAVAJO COUNTY	88	38	0	0	0	131
Percent Change, Previous Year	-31	6	—	—	—	-25
Percent Change, Previous Qtr.	167	6	—	—	—	62
PIMA COUNTY	991	21	12	8	397	1,427
Percent Change, Previous Year	-14	-45	-45	-50	67	-2
Percent Change, Previous Qtr.	22	17	50	0	-62	-24
PINAL COUNTY	84	59	0	0	0	143
Percent Change, Previous Year	-6	-64	—	—	—	-53
Percent Change, Previous Qtr.	-2	-67	—	—	—	-59
SANTA CRUZ COUNTY	35	0	0	6	0	41
Percent Change, Previous Year	-74	—	—	—	—	-71
Percent Change, Previous Qtr.	0	—	—	100	—	-71
YAVAPAI COUNTY	372	191	8	30	40	601
Percent Change, Previous Year	-3	30	300	-86	150	-1
Percent Change, Previous Qtr.	19	32	100	233	344	34
YUMA COUNTY	99	108	0	0	13	210
Percent Change, Previous Year	71	125	—	—	—	110
Percent Change, Previous Qtr.	6	-41	—	—	—	-31
TOTAL, ARIZONA	6,799	1,086	86	154	3,473	11,347
Percent Change, Previous Year	-15	-19	139	-2	66	0
Percent Change, Previous Qtr.	17	-36	84	268	99	27

Note: A dash indicates that a percent change could not be calculated because at least one period had no activity.

Source: Center for Business Research, College of Business, Arizona State University.

Industrial

While Maricopa County continued to dominate industrial development (65 percent of all recorded activity), its $14.6 in new projects was down from the first quarter's $16 million and well below the $45 million reported for second quarter 1987. Over 95 percent of the activity was in Phoenix (18 permits, $8.9 million) and Tempe (9 permits, $5.2 million).

In contrast, Pima County's industrial permit value increased from less than $1 million for the first quarter to $5.7 million, well above the $728,000 reported a year ago. Unincorporated Pima County had 2 permits worth a total of $3.3 million and Tucson's 6 permits totalled $1.9 million. No area in the non-metropolitan counties issued permits in excess of $1 million.

Other

Construction of educational facilities continued to lead this diverse sector, with second quarter projects valued at $56 million, in contrast to first quarter's $23 million. Phoenix issued one educational permit for $24 million. New health care facility development remained strong at more than $21 million; Scottsdale issued one permit for $12 million.

LOOKING AHEAD

Although construction activity improved during the second quarter, the year-to-date total of $2.4 billion is still below the $2.6 billion recorded during the first half of 1987. Further, this quarterly improvement was not evident in all sectors, in the number of projects, or throughout the state. Much of the increase, located in Maricopa County, was based on a few major projects and an unexpected surge in multifamily development. Seven of the permits

issued in Maricopa County, or 13 percent of all permits in the county, totalled $137 million, a value equal to all of the permitted activity in Pima County in the second quarter.

Apartment development in metropolitan Phoenix was aimed at specific niches such as the luxury market, in spite of a record 17 percent vacancy rate. This, coupled with limited market opportunities, suggests lower levels of multifamily construction for the rest of 1988.

No reasonable trend is discernible in current construction activity, which heightens concern about the future. Construction in Arizona has simply expanded faster than the economy or the population. This fact combined with higher mortgage interest rates will not encourage growth. Until a more positive environment returns, construction is not likely to increase beyond the second quarter 1988 levels.

On the other hand, nothing currently on the horizon, such as a recession, threatens to drive down construction activity. Because the long-term outlook for Arizona is promising, developers will continue to start major projects in anticipation of expected market growth. Further, as they recognize the potential of non-urban Arizona, increased multifamily and retail construction activity in these areas should follow.

While the 1988 pace continues below that of 1987, 1988 will end as a good year — albeit not a strong one — for Arizona's construction industry. However, activity will probably remain slow and uneven as developers examine the market throughout Arizona.

– Jay Q. Butler

Dr. Butler is Associate Professor of Real Estate and Director of the Arizona Real Estate Center in the ASU College of Business.

TABLE 4
ARIZONA BUILDING PERMITS
Second Quarter 1988

	Residential*		Commercial		Industrial		Other		Total	
	Number of Permits	*Dollar Value (000)*	*Number of Permits*	*Dollar Value (000)*	*Number of Permits*	*Dollar Value (000)*	*Number of Permits*	*Dollar Value (000)*	*Number of Permits*	*Dollar Value (000)*
APACHE COUNTY	58	1,901	1	75	0	0	4	46	63	1,922
Percent Change, Previous Year	-41	-44	-75	-85	—	—	-50	-28	-43	-45
Percent Change, Previous Qtr.	132	207	-80	-58	—	—	300	142	103	145
COCHISE COUNTY	230	6,158	28	3,894	0	0	176	536	432	10,388
Percent Change, Previous Year	-51	-41	24	143	—	—	-37	-18	-44	-17
Percent Change, Previous Qtr.	-7	12	117	108	—	—	4	17	0	34
COCONINO COUNTY	513	21,287	51	6,780	1	18	177	1,156	742	29,211
Percent Change, Previous Year	-6	7	-48	-56	-75	-96	6	93	-8	-20
Percent Change, Previous Qtr.	68	101	55	84	-50	-96	54	-10	63	73
GILA COUNTY	248	6,202	18	905	2	157	83	640	330	7,804
Percent Change, Previous Year	-2	6	-6	43	—	—	-11	-83	-4	-23
Percent Change, Previous Qtr.	32	20	0	-80	—	—	91	68	39	3
GRAHAM COUNTY	152	2,188	3	182	0	0	15	196	170	2,846
Percent Change, Previous Year	30	22	-70	-83	—	—	-52	-40	4	2
Percent Change, Previous Qtr.	27	1	-67	264	—	—	-12	195	18	12
GREENLEE COUNTY	0	0	0	0	0	0	0	0	0	0
Percent Change, Previous Year	—	—	—	—	—	—	—	—	—	—
Percent Change, Previous Qtr.	—	—	—	—	—	—	—	—	—	—
LA PAZ COUNTY	89	980	6	92	0	0	24	97	119	1,169
Percent Change, Previous Year	51	108	20	-86	—	—	60	60	45	-17
Percent Change, Previous Qtr.	-18	-34	20	-21	—	—	-7	47	-25	-30
MARICOPA COUNTY	6,817	439,738	702	376,984	32	14,573	5,910	211,604	13,521	1,042,899
Percent Change, Previous Year	-14	-10	20	7	-58	-68	-21	8	-16	-4
Percent Change, Previous Qtr.	10	18	82	120	-52	-10	6	30	10	44
MOHAVE COUNTY	1,033	29,618	44	7,099	2	52	423	2,846	1,502	39,615
Percent Change, Previous Year	17	30	2	-16	-60	-84	5	-15	13	14
Percent Change, Previous Qtr.	1	16	42	174	100	-29	25	-23	3	24
NAVAJO COUNTY	344	7,886	19	3,466	2	666	51	224	417	12,115
Percent Change, Previous Year	6	-29	171	667	100	3,778	0	-16	10	6
Percent Change, Previous Qtr.	64	84	36	298	100	—	-4	155	70	134
PIMA COUNTY	1,948	75,364	68	22,614	10	5,736	1,339	33,100	3,361	137,048
Percent Change, Previous Year	5	-4	-21	-30	-29	107	-16	-11	-5	-9
Percent Change, Previous Qtr.	26	20	-42	-48	233	866	16	7	20	0
PINAL COUNTY	261	8,308	36	10,075	9	838	186	3,570	492	22,889
Percent Change, Previous Year	-12	-12	-10	41	800	550	82	-34	1	3
Percent Change, Previous Qtr.	-17	-6	-27	-16	—	—	-4	136	-12	2
SANTA CRUZ COUNTY	39	1,757	8	332	0	0	5	6	52	2,095
Percent Change, Previous Year	-73	-79	300	1,177	—	—	-72	-95	-69	-76
Percent Change, Previous Qtr.	-73	-16	167	52	—	—	-44	-83	-67	-12
YAVAPAI COUNTY	676	33,784	41	8,433	4	527	281	11,522	1,202	54,247
Percent Change, Previous Year	13	12	-29	48	100	221	10	324	10	40
Percent Change, Previous Qtr.	31	44	-16	96	0	-93	31	273	20	42
YUMA COUNTY	282	8,994	23	5,718	2	152	219	3,227	523	17,789
Percent Change, Previous Year	60	63	-12	14	0	-6	55	-62	44	-33
Percent Change, Previous Qtr.	-26	-15	5	184	-50	-36	-8	97	-19	2
TOTAL, ARIZONA	12,911	643,462	1,104	448,549	94	22,753	9,847	366,770	22,926	1,381,534
Percent Change, Previous Year	-7	-8	6	4	-40	-55	-17	1	-11	-4
Percent Change, Previous Qtr.	12	20	27	83	14	-19	9	31	12	36

*Includes mobile homes

Note: A dash indicates that a percent change could not be calculated because at least one period had no activity.

Source: Center for Business Research, College of Business, Arizona State University.

Arizona's Fast Economic Growth Is Misleading

Arizona's economic growth was third fastest in the nation between 1970 and 1986. Its 5.6 percent annual average gain in Gross State Product (GSP) more than doubled the national average of 2.7 percent.

The state's growth, however, has been highly cyclical. In each expansion since 1970, Arizona has led the nation in economic growth in at least one year. During recessions, however, Arizona suffers more than the national average; for example, its percent change in GSP ranked 42nd in 1975 and 43rd in 1982.

Further, after adjusting for population growth, Arizona's economic growth no longer is spectacular. Its 1.7 percent per capita annual average GSP advance ranked Arizona 30th, near the national average of 1.6 percent.

This article analyzes 1963-86 GSP data produced by the U.S. Department of Commerce, Bureau of Economic Analysis. The article beginning on p.12 describes this data and how it varies from the Center for Business Research's GSP estimate.

1986 GSP

Arizona's 1986 GSP of $53 billion accounted for 1.2 percent of the national total. The four largest states —California, New York, Texas and Illinois—were responsible for one-third of the nation's total.

Adjusting for population, per capita GSP was highest in the District of Columbia and Alaska, more than twice the national average of $17,386. Wyoming, Connecticut, New Jersey and New York also ranked high. Arizona's figure of $16,241 was just 93 percent that of the national average. States in the South had the lowest per capita GSPs, with Mississippi's value only 70 percent of the national average.

1970-86 REAL GROWTH

Alaska and New Hampshire were the only states to exceed Arizona's growth between 1970 and 1986 (see Table 1). Except for Louisiana, which had the slowest growth, the other poor performers were states in the Northeast and Mideast.

Between 1980 and 1986, Arizona ranked seventh, as the recessions of 1980 and 1981-82 adversely affected the state. New Hampshire led 1980s growth by a wide margin, with Georgia, Massachusetts, Vermont, Connecticut and Florida all exceeding Arizona's pace. Except Arizona, each of the top 15 states are from the East.

During the 1980s, the GSP of four states declined (Wyoming, Louisiana, Montana and West Virginia). Most of the other slowly growing states are west of the Mississippi River.

Thus, economic fortunes swung dramatically from the 1970s to the 1980s. The West generally outperformed the East in the 1970s, but the opposite was true in the 1980s. Though population growth did increase in the East in the 1980s because of reduced out-migration, the strong economies were not a function of rapid population gains.

Real per capita GSP growth, even over the 1970-86 period, generally was greatest in the New England states and a few of the southeastern states. New Hampshire easily had the fastest per capita growth at 3.8 percent per year, followed by Massachusetts at 2.8 percent. The slowest growing states largely are located in the West. Wyoming and Louisiana were the only states to experience declines in real per capita GSP, but growth was slow in Hawaii, Oklahoma, West Virginia, Nevada and New Mexico.

The only years since 1963 when at least one state did not experience a declining GSP were 1965, 1978 and 1984. Declines affected at least one-half of the states in 1970, 1974-75, 1980 and 1982. Arizona's gains were below average in 1964-65, 1975-76 and 1981-82. It did particularly poorly in the mid-1960s, ranking 48th in 1965 (see Figure I). Conditions then—declining construction industry and weak overall economy in Arizona at the same time that construction and the entire economy were expanding nationally—were much like those of today. Arizona's growth in 1988 probably will be below the national average.

Except during recessions, Arizona and Florida have been among the fastest growing states since the 1960s. Other states have not shown such a consistent pattern. Among Arizona's neighbors, Colorado and New Mexico have experienced slower than average growth since 1982, each affected by the oil industry's troubles. After booming in the late 1970s, Nevada's growth barely has kept up with the national average in the 1980s. California's economic growth since 1982 has been greater than in the expansions of the 1970s.

INDUSTRIAL SIZE AND GROWTH

Both sectoral shares and growth vary widely by state. A summary by major industry of 1986 shares and 1970-86 growth follows.

Agriculture

Nationally, this industry accounted for only 2.2 percent of gross product; in Arizona the share was similar. States in the Northeast had the smallest shares, while those in the northern Great Plains had the highest shares, led by South Dakota at 15.9 percent.

TABLE 1
REAL GROWTH IN GROSS STATE PRODUCT
Annual Average 1970-86

Fastest Growing	Total	Per Capita	Slowest Growing	Total	Per Capita
1. Alaska	6.4%	2.8%	51. Louisiana	0.6%	-0.7%
2. New Hampshire	5.9	3.8	50. District of Columbia	1.0	2.0
3. Arizona	5.6	1.7	49. West Virginia	1.2	0.6
4. Florida	5.0	1.7	48. Pennsylvania	1.3	1.3
5. Nevada	5.0	0.7	47. New York	1.5	1.6
6. Georgia	4.6	2.3	46. Illinois	1.5	1.3
7. Colorado	4.5	2.0	45. Ohio	1.6	1.6
26. Massachusetts	2.9	2.8	41. Wyoming	2.0	-0.7
27. Connecticut	2.9	2.6	37. Hawaii	2.3	0.3
10. Tennessee	3.9	2.6	40. Oklahoma	2.0	0.4
United States	2.7	1.6			

Source: Center for Business Research, College of Business, Arizona State University from U.S. Department of Commerce, Bureau of Economic Analysis data.

The industry's average annual growth of 2.1 percent was slower than that of the overall economy (2.7 percent). Though Arizona's 3.4 percent growth exceeded the national average, agriculture was only one of two industries in which Arizona did not rank among the top six states.

Mining

In most states, the share of economic activity contributed by mining was less than the national average of 2.3 percent; Arizona ranked 18th with only a 1.3 percent share. Mining is concentrated in a few states in which it accounts for more than 10 percent of GSP, led by Alaska at 33.4 percent and Wyoming at 26.4 percent, followed by Louisiana, New Mexico, West Virginia, Oklahoma and Texas. Several states have almost no mining output.

The industry's GSP declined in Arizona 1.3 percent per year, the same as the national average. Several states, however, experienced rapid growth in their mining industry; Alaska led with 8.5 percent per year.

Construction

Arizona's construction industry was responsible for 10 percent of its GSP, a share exceeded only in Alaska and Wyoming. The national figure was just 4.7 percent, with slowly growing states in the East and Mideast having the smallest shares.

Nationally, construction's growth in gross product was zero between 1970 and 1986. Arizona's construction industry, however, expanded an average of 4.8 percent per year; only three other states grew faster.

Manufacturing

Huge variation exists in the size of the manufacturing industry by state. After North Carolina, in which manufacturing has a 31.4 percent share, the most manufacturing-dependent states are around the Great Lakes. Though Arizona's 13.5 percent share contributed by manufacturing was well below the nation's 19.5 percent average, 12 states—mostly in the West—had even smaller portions, with Wyoming the lowest at 2.8 percent.

Manufacturing's growth nationally was 3.0 percent between 1970 and 1986. Arizona's 7.6 percent growth ranked third behind New Mexico and New Hampshire.

TCPU

The range in sectoral shares contributed by the transportation, communication and public utilities sector is narrow. Arizona's 8.7 percent share was near the national average of 9.2 percent. Most of the high ranking states were in the Rocky Mountains or Great Plains; the lowest ranked states were generally in New England.

Nationally, the TCPU industry's growth averaged 3.0 percent. Its gross product did not decline in any state; the most rapid growth occurred in Alaska (7.2 percent) and the Rocky Mountain states of Colorado, Utah and Arizona.

Wholesale Trade

Arizona's 5.3 percent share was slightly less than the national average. No regional pattern was apparent; Georgia had the largest share (9.6 percent) and Alaska the lowest (2.5 percent).

New Hampshire's wholesale trade industry was the fastest growing at 8.1 percent; Arizona ranked fifth at 6.2 percent.

Retail Trade

The national average was slightly less than Arizona's 11.5 percent, which was tied for second largest. Little range was apparent, with nearly all states exceeding 8 percent shares.

Arizona's 6.1 percent average growth was second behind Alaska. Some of the Great Plains states experienced the slowest gains.

FIRE

Arizona's finance, insurance and real estate industry's contribution to gross product was nearly equivalent to the national average of 16.4 percent. Most of the leading states were in the Northeast, with New York at 22.2 percent. Southern states were the lowest after Alaska's 9.2 percent.

Alaska and New Hampshire had the fastest growth in the FIRE industry. Arizona's 5.6 percent rate placed sixth, above the national average of 3.4 percent.

Services

Nevada's economy is much more highly geared to services than that of any other state. Services contribute 36 percent of Nevada's GSP, compared to second-ranked Massachusetts' 22 percent portion. Arizona's share again was near the national average of 16.5 percent.

Growth in Arizona's services industry was second fastest at 6.9 percent per year, behind Alaska. Nationally, the industry expanded an average of 4.7 percent per year, the fastest of the major industries.

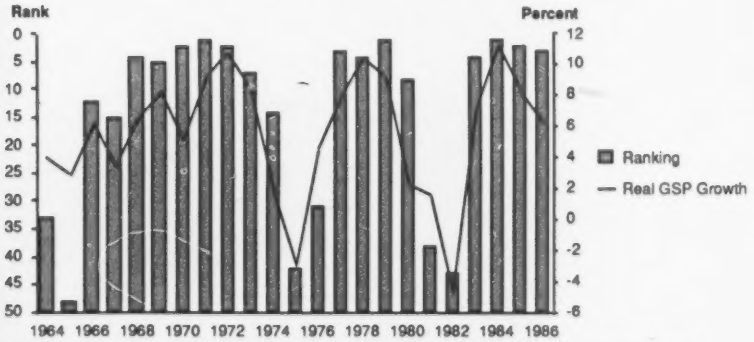
Government

Other than the District of Columbia, Hawaii's share was the greatest at 24 percent. Arizona ranked 13th at 13.9 percent, above the 12 percent national average.

Arizona's government sector easily was the fastest growing in the nation between 1970 and 1986. Its 4.1 percent annual rate greatly exceeded the national average of 1.1 percent. Wyoming was the only other state to have growth of at least 3 percent.

– **Tom R. Rex**
Research Manager

FIGURE I
ARIZONA GROSS STATE PRODUCT
RANKING AND ANNUAL GROWTH RATE



Source: Center for Business Research, College of Business, Arizona State University.

New GSP Measure Released by Federal Government

The U.S. Department of Commerce, Bureau of Economic Analysis (BEA) recently released a new measure of Gross State Product (GSP) which likely is the best gauge available of a state's annual economic growth by industry. The BEA's estimate of GSP is similar to that produced by the Center for Business Research (CBR), but uses data not available to the CBR to more directly and accurately measure economic performance.

GSP, defined as the gross market value of goods and services attributable to labor and property located in a state, is the most comprehensive economic measure available by state. It is similar to the Gross National Product (GNP), or more accurately, to the nation's gross domestic product.

The BEA calculates GSP by totaling four components: (1) compensation of employees, which represents roughly 60 percent of Arizona's gross product; (2) proprietors' income (approximately 10 percent); (3) indirect business taxes—liabilities charged to business operations (just more than 20 percent); and (4) capital charges, including profit rates (less than 10 percent). The first two components roughly equate to earnings by industry, the primary data used by the CBR in its calculation. The last two components, however, have to be approximated by the traditional GSP methodology and therefore cannot take into account state differences in tax structures and rates and in capital stocks and rates of return.

The BEA data has the additional advantage of being reported by subsector. However, it is available only annually, through 1986. It may not be updated until 1990.

INDUSTRIAL GROWTH

Industries that provide at least 0.5 percent of the state's current dollar gross product, as measured by the BEA, are shown in Table 1 with their growth rates. The state's annual average rate of 5.6 percent was about twice that of GNP over the 1970-86 period. Average growth

TABLE 1
ANNUAL AVERAGE GROWTH RATES IN REAL GSP

	1980-86	1970-86	1986 Sectoral Share
TOTAL	4.8%	5.6%	100.0%
AGRICULTURE	2.0	3.4	2.1
Farming	0.7	2.7	1.5
Agricultural Services	6.8	6.1	0.6
MINING	–2.0	–1.1	1.3
Metals	–4.3	–2.0	0.9
Other	4.8	2.3	0.4
CONSTRUCTION	4.4	4.8	10.0
MANUFACTURING	6.6	7.6	13.5
Durables	7.0	7.7	10.9
Stone, Clay, Glass Products	5.1	7.5	0.7
Primary Metal Industries	–2.8	3.1	0.9
Fabricated Metals	3.6	4.4	0.6
Machinery, except Electrical	9.0	9.6	1.9
Electric and Electronic Equipment	8.1	8.9	2.6
Transportation Equipment	8.3	7.5	2.5
Instruments	10.4	9.7	0.8
Other	10.5	7.4	0.9
Non-durables	4.4	6.9	2.6
Food	1.5	5.0	0.6
Printing and Publishing	4.8	5.9	0.9
Other	5.8	9.1	1.1
TCPU	2.9	5.6	8.7
Transportation	3.3	4.3	2.5
Trucking and Warehousing	4.3	6.1	1.0
Air	3.8	6.0	0.7
Other	1.5	1.5	0.8
Communication	3.7	6.9	2.6
Public Utilities	2.0	5.8	3.6
TRADE	6.5	6.2	16.8
Wholesale	7.0	6.2	5.3
Retail	6.2	6.1	11.5
FIRE	3.8	5.3	16.7
Banking	3.9	4.6	1.3
Credit Agencies	17.2	10.6	0.5
Investment Services	15.3	11.3	0.8
Insurance Carriers	7.3	7.1	1.1
Insurance Agents	5.1	5.5	0.8
Real Estate	2.9	5.4	12.5
SERVICES	6.7	6.9	17.0
Hotels and Lodging	0.4	3.1	1.2
Personal Services	3.8	3.3	0.8
Business Services	11.3	10.4	4.0
Auto Repair	6.7	7.1	1.0
Health Services	7.3	7.2	4.8
Legal Services	6.9	6.3	1.2
Social Services	2.4	6.6	1.1
Miscellaneous Professional	6.1	8.2	1.6
Other	6.1	4.4	1.4
GOVERNMENT	3.2	4.2	13.9
Federal Civilian	1.3	2.4	2.5
Military	0.9	0.4	1.6
State and Local	4.3	5.8	9.8

Source: Calculations by the Center for Business Research, College of Business, Arizona State University from U.S. Department of Commerce, Bureau of Economic Analysis data.

TABLE 2
GROSS STATE PRODUCT COMPARISONS, 1986

	Current Dollars*				Real 1982 Dollars*			
			Difference				Difference	
	CBR	BEA	$	%	CBR	BEA	$	%
TOTAL	$52,455	$53,253	–798	–1.5	$46,030	$46,058	–28	–0.0
Agriculture	1,230	1,121	109	9.7	1,336	1,192	144	12.1
Mining	1,342	683	683	96.5	1,581	679	902	132.8
Construction	3,859	5,330	–1,471	–27.6	3,454	4,532	–1,078	–23.8
Manufacturing	7,976	7,172	804	11.2	7,939	7,412	527	7.1
TCPU**	4,155	4,646	–491	–10.6	3,782	3,841	–59	–1.5
Trade	8,903	8,933	–30	–0.3	8,277	8,132	145	1.8
FIRE***	9,261	8,909	352	4.0	7,050	7,080	–30	–0.4
Services	8,799	9,045	–246	–2.7	7,011	7,287	–276	–3.8
Government	6,932	7,413	–481	–6.5	5,600	5,904	–304	–5.1

*Millions of dollars
**Transportation, Communications, Public Utilities
***Finance, Insurance and Real Estate

Source: Center for Business Research, College of Business, Arizona State University and U.S. Department of Commerce, Bureau of Economic Analysis.

during the 1980s was slower because of the two recessions in the early 1980s.

The manufacturing industry grew the most rapidly of the nine major industries between 1970 and 1986, but its fastest growth occurred in the 1970s, a continuation of the industry's rapid entrance into the Arizona economy. In the 1980s, manufacturing's growth rate was about equal to that of services and trade.

Other than mining, whose gross product declined between 1980 and 1986, the slowest growing industries were agriculture and government. The gross products of TCPU (transportation, communication and public utilities) and FIRE (finance, insurance and real estate) both declined sharply during 1980-82, lowering their average growth rate of the 1980s well below that of the 1970s.

Weak expansion in the production of the farming subsector is the cause of agriculture's slow growth; the gross product of agricultural services expanded slightly more than the overall average. Likewise, poor performance in metal mining—mostly copper— is responsible for the mining industry's decline. In the government sector, the federal civilian and military subsectors barely have grown, but state and local government has expanded at about the average rate of the entire economy.

TABLE 3
SECTORAL SHARE COMPARISONS, 1986
Current Dollars

	CBR	BEA	Difference
Agriculture	2.3%	2.1%	0.2%
Mining	2.6	1.3	1.3
Construction	7.4	10.0	–2.6
Manufacturing	15.2	13.5	1.7
TCPU*	7.9	8.7	–0.8
Trade	17.0	16.8	0.2
FIRE**	17.7	16.7	1.0
Services	16.8	17.0	–0.2
Government	13.2	13.9	–0.7

*Transportation, Communications, Public Utilities
**Finance, Insurance and Real Estate

TABLE 4
GSP GROWTH RATE COMPARISONS
1970-86 Annual Average, Real Dollars

	CBR	BEA	Difference
TOTAL	5.7%	5.6%	0.1%
ADJUSTED TOTAL*	5.7	5.9	–0.2
Agriculture	4.5	3.4	1.1
Mining	4.5	–1.1	5.6
Construction	4.9	4.8	0.1
Manufacturing	6.4	7.6	–1.2
TCPU**	6.1	5.6	0.5
Trade	6.3	6.2	0.1
FIRE***	5.9	5.3	0.6
Services	6.6	6.9	–0.3
Government	3.5	4.2	–0.7

*Excludes the mining and agriculture industries.
**Transportation, Communications, Public Utilities
***Finance, Insurance and Real Estate

Sources (Tables 3 and 4): Calculations by the Center for Business Research, College of Business, Arizona State University from U.S. Department of Commerce, Bureau of Economic Analysis data.

Within the FIRE industry, both banking and real estate have grown slower than the overall average pace. In the TCPU sector, transportation expanded at a below average rate while growth in both communication and public utilities decelerated greatly in the 1980s.

Not all of the manufacturing subsectors expanded rapidly. While the high technology industries such as instruments and electronic equipment grew at rapid rates, the metals industries—related to mining—struggled. Similarly, not all of the services subsectors shared in the industry's strong performance. In particular, the tourism industry of hotels and other lodging places experienced little growth in the 1980s.

COMPARISON OF MEASURES

The GSP estimates produced by the CBR are compared to those of the BEA in Table 2. Both in current and real dollars, total GSP is not much different in the two series, but sizeable disagreements are apparent by industry, particularly in mining and construction. The differences are large enough to cause noticeable variances in sectoral shares (see Table 3). The CBR overestimates the size of the mining, manufacturing and FIRE industries, but substantially understates the construction sector.

These size disparities between the series largely have existed since the 1960s, when the GSP measures begin, so the annual average growth rates are not much different except in the mining industry. Annual average growth rates nearly agree for overall GSP, adjusted GSP, construction, trade and services. (See Table 4).

Deviations in growth rates may be somewhat greater for any particular year, but usually are offset within one or two years in total GSP and rarely exceed 1.5 percentage points. By industry, the annual growth rate can vary more widely, though very large differences are common only in the mining and agriculture industries.

The most important use of GSP is to measure overall economic growth. On this basis, the CBR's annual estimate is reasonably accurate, particularly after the first round of data revisions has been completed.

EXTENSION TO GCP

Since the BEA has not calculated gross products by county, an evaluation of the Gross County Products (GCP) presented in the September 1988 issue of *Arizona Business* is not possible. However, some general conclusions can safely be made. First, total GCP growth of counties with a large mining industry probably are overstated; this seems particularly likely in Greenlee and Navajo Counties. To a lesser extent, economic growth of counties with a relatively large agriculture industry probably are overstated as well. Second, annual and sectoral growth estimates are likely to be less accurate in the smaller counties. Over time, however, these errors generally offset.

– Tom R. Rex
Research Manager

New Business Start-Ups Continue to Slide in 1st Quarter 1988

The number of new businesses started by metropolitan Phoenix entrepreneurs declined slightly during first quarter 1988, compared to fourth quarter 1987. The quarterly Metro Phoenix New Business Index fell to 82.4 (1986=100) due to a drop in new businesses to 869 during the first quarter of 1988 from 1004 during the fourth quarter of 1987. The index measures new business start-ups, excluding franchises, branches, and relocations. Data are obtained through a cooperative agreement between the Arizona New Business Review and the Center for Business Research.

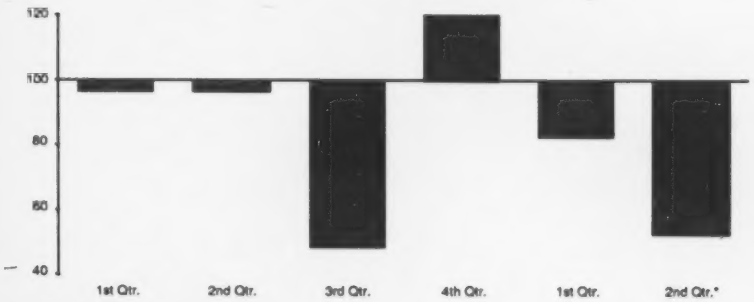
The number of new start-ups was also down compared to the first quarter of 1987, when 1,013 new firms began business. During 1987, 3,329 new firms were started in the metropolitan area.

Especially large decreases in the number of new start-ups occurred in Finance, Insurance, and Real Estate, down 37 percent from the previous year. The only sector in which start-up activity increased compared to a year ago was construction, up 9 percent.

Preliminary figures for second quarter 1988 show an even greater decrease in new business starts, dropping the index below 60. (Final figures will be available in January.)

– Yolanda Strozier
Research Analyst
Economic Outlook Center

FIGURE I
METROPOLITAN PHOENIX NEW BUSINESS INDEX
(1986 = 100)



*Preliminary estimate, based on incomplete data

Source: Arizona New Business Review and the Center for Business Research, College of Business, Arizona State University.

Coincident Indexes Measure Additional Weakness in June

For the third consecutive month, economic activity stumbled in June in most of Arizona. The second quarter was the weakest period for the Arizona economy since the end of the last recession in 1982.

Despite an increase in June, Pima County's coincident index declined 1.0 percent during the second quarter. The non-urban economy fell even further (1.3 percent) while the index for Maricopa County rose only 0.1 percent during the three months.

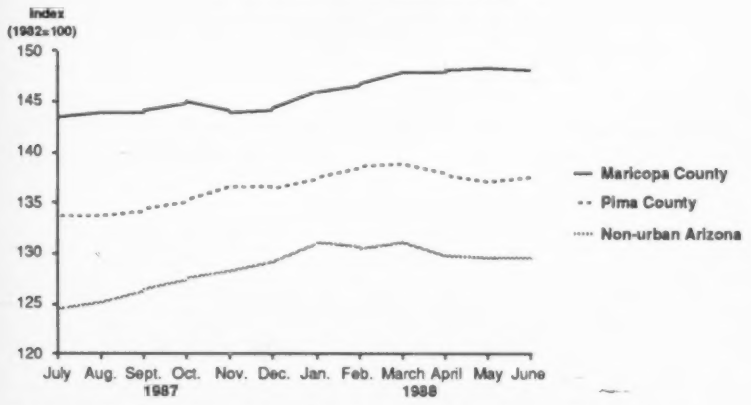
In June, the coincident economic index for the Phoenix metropolitan area decreased 0.3 percent to 148.1 (1982 = 100). The index for the Tucson area rose 0.4 percent to 137.6 while the index for non-urban Arizona held steady at 129.5.

Employment losses occurred throughout the state in June, with the level falling to the lowest point since September 1987 in Pima County and rural Arizona. Unemployment was flat in Maricopa County but improved elsewhere, partially offsetting May's rise in the unemployment rate.

Pima County's index advanced primarily because of gains in retail sales and commercial building permit valuations. Elsewhere, retail sales were flat and permit values declined.

While improving economic conditions are likely later in 1988, economic performance probably will not exceed the subpar level that prevailed prior to the second quarter. No improvement was apparent in preliminary data for July, which indicates economic activity probably declined throughout the state, particularly in rural Arizona.

FIGURE I
COINCIDENT ECONOMIC INDEXES



Source: Center for Business Research, College of Business, Arizona State University.

– **Tom R. Rex**
Research Manager

Purchasing Indicators Turn Upbeat in August

The Arizona economy continued to enjoy strong economic growth as new orders, production, and employment each turned in an upbeat performance in August.

As the economy moves through year six of the expansion which began in January of 1983, it still has good underlying strength and is likely to stay that way over the balance of the year and into 1989, fueled by robust demand, capital investment, and exports. However, the Federal Reserve seems determined to defuse inflation by pushing interest rates up, and that action, coupled with tightened labor and resource markets, will begin to cut into the growth rate as we move into the fourth quarter.

New orders received from customers jumped up sharply in August, as the trend in order bookings continued its pronounced upward movement. The new order rate has registered consistently strong performance each month this year, as consumer and industrial demand shows no sign of softening.

Production was raised in August to keep pace with the increase in new orders.

Employment grew at a higher rate than in both June and July, its 20th consecutive monthly increase. As Arizona employers continue to add new employees, the tighter labor market will add further fuel to the inflation rate.

TABLE 1
AUGUST PURCHASING SURVEY

	Percent of Purchasing Managers Indicating Each Response (August compared to July)		
Key Indicators	*Higher*	*Same*	*Lower*
Prices paid for major commodities	53	44	3
Delivery time from vendors	35	58	7
Purchased materials inventory level	26	49	25
New orders received	42	35	23
Production	38	43	19
Employment	28	59	13
Purchases	42	34	24

Source: Purchasing Management Association of Arizona, Purchasing Management Association of Southern Arizona, and the Northern Arizona Group.

– **Harold Fearon**

Dr. Fearon is the National Association of Purchasing Management Professor in the ASU College of Business.

ARIZONA ECONOMIC INDICATORS

	Month or Quarter	Value	Percent Change from Previous Period	Percent Change from Year Ago	Year-to-Date Value	Year-to-Date Percent Change from Year Ago
GROSS STATE PRODUCT						
(In Billions of Dollars, at Annual Rate)						
Arizona - Current Dollars	1st Qtr.	59.443	2.0	9.0	NA	NA
Arizona - 1982 Dollars	1st Qtr.	49.003	1.5	4.5	NA	NA
COINCIDENT ECONOMIC INDEXES						
(1982 = 100)						
Arizona	June	143.0	–0.1	3.9	NA	NA
Metropolitan Phoenix	June	148.1	–0.2	4.3	NA	NA
Metropolitan Tucson	June	137.5	0.4	2.7	NA	NA
Non-urban Arizona	June	129.5	0.0	4.4	NA	NA
CONSUMER PRICE INDEX (1982-84 = 100)						
Metropolitan Phoenix	2nd Qtr.	119.9	2.1	3.8	NA	NA
INDEX OF LEADING ECONOMIC						
INDICATORS (1977 = 100)						
Arizona	July	111.1	0.2	0.5	NA	NA
BUILDING PERMITS						
(Total Dollar Value in Thousands)						
Maricopa County	June	316,319	–15	0	1,786,085	–10
Pima County	June	52,741	31	12	273,673	–12
Balance of State	June	73,589	–2	–22	355,613	4
Arizona	June	442,649	–9	–3	2,395,371	–9
TOTAL HOUSING UNITS AUTHORIZED						
Maricopa County	June	2,688	33	32	12,310	–15
Pima County	June	637	95	48	3,307	–9
Balance of State	June	949	2	–36	5,056	–10
Arizona	June	4,274	31	8	20,673	–13
HOME SALES						
Maricopa County - Number	July	4,750	9	–26	24,550	–17
Maricopa County - Median Price	July	80,650	0	0	79,880	0.7
HOUSING AFFORDABILITY INDEXES						
Metropolitan Phoenix - New Homes	2nd Qtr.	96	5.5	1.1	NA	NA
Metropolitan Phoenix - Resale Homes	2nd Qtr.	124	0.8	6.9	NA	NA
MORTGAGE INTEREST RATES						
(Conventional, 30-year, Fixed-rate)						
Maricopa County	August	10.7	2.9	3.9	NA	NA
POPULATION ESTIMATES						
(In Thousands)						
Maricopa County	2nd Qtr.	2,013	0.3	2.2	NA	NA
Arizona	2nd Qtr.	3,476	0.3	2.1	NA	NA
ELECTRICAL POWER SALES						
(In Millions of Kilowatt Hours)						
Arizona	July	4,768	13.5	20.8	24,853	10.8

NA = Not Applicable

Source: Center for Business Research, College of Business, Arizona State University.

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